

Ecological Concerns Surrounding the 903 Pad Remediation

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Technical summary: This paper summarizes some of the potential ecological concerns that will need to be addressed during the 903 Pad project. This paper assumes that the 903 pad remediation will consist of some surface soil excavation (at least the top 6-12") combined with stabilization and erosion control to minimize the subsequent migration of remaining radionuclides

All excavation or stabilization alternatives will have severe, obvious short-term effects on local ecology. Resident plants and animals will either be killed or displaced, and the general disturbance resulting from heavy equipment use will disrupt the habits of large, mobile animals such as deer and coyotes. Birds nesting in grasslands will either lose nests or previously available nesting sites, depending on the timing of the action. Care will need to be taken during excavation to minimize erosion by wind and water both to prevent contaminant spread and to prevent gullyng and effects on downstream habitats. These effects are anticipated to be fairly short in duration and will only affect relatively small areas of the Site.

The 903 Pad and lip areas, as well as immediately to the east along the East Access Road, are disturbed areas, some of which have been revegetated (although the Pad and lip themselves have not) and are listed as "reclaimed grassland" on the Site's vegetation map. All of the lands exceeding Tier I action levels for plutonium (651 pCi/g) are in these areas, and removal of contamination combined with successful regrading and revegetating with native species, will improve ecological conditions there. This is also true in general of areas exceeding Tier II action levels (115 pCi/g), almost all of which are either in currently disturbed areas, or in reclaimed grasslands. The Tier II action level soils partially overlap a small wetland of about 0.1 acres. This wetland would require on-site or off-site replacement were it to be affected.

Were excavation to extend to incorporate areas over 35 pCi/g, the value and sensitivity of the habitats that would be affected increase, as does the potential for more serious impacts. Some of the areas that have soil contamination less than Tier I but greater than 35 pCi/g Pu lie in undisturbed mesic mixed grassland, part of the essential winter range for the Site's mule deer. Additionally, the southernmost extent of soils containing greater than 35 pCi/g lies in or immediately adjacent to known or suitable habitat for the Preble's meadow jumping mouse. Site experience suggests that considerable efforts would be needed to mitigate potential impacts.

Since excavation will remove topsoil, care will need to be taken to ensure that the land remaining after regrading is suitable for revegetation. Substantial amounts of new topsoil may need to be imported. Revegetation should be done using a mix of native species, such as those comprising the mixed mesic grassland found in the immediate vicinity. Local experience (such as on the nearby "remedy lands") suggests that revegetation could be difficult. The newly disturbed lands could easily be infested by noxious weeds, and would need to be the subject of intensive weed control efforts following the remediation. Left unvegetated, the areas would be subject to erosion by wind and water, with the potential to adversely affect downstream surface water.

Policy perspective: In general, the amount and severity of ecological impacts will increase with the amount of acreage that is excavated, and the severity of longer-term ecological impacts will be determined by the type of habitat affected and the success of revegetation efforts after cleanup is complete. For cleanup levels approaching 35 pCi/g Pu, the potential exists for damage to sensitive habitats (undisturbed prairie and riparian areas) and for effects on the Preble's meadow jumping mouse. These effects should be considered in balancing the conservatism of a cleanup standard with adverse effects on local ecology.